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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/689,039	10/21/2003	Shinichi Ooizumi	Q77809	4510

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EXAMINER

DANIELS, MATTHEW J

ART UNIT PAPER NUMBER

1732

DATE MAILED: 11/02/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

### Period for Reply

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

## Status

- 1) ☒ Responsive to communication(s) filed on 21 October 2003.  
2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.  
3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

## Disposition of Claims

- 4) ☒ Claim(s) 1-7 is/are pending in the application.  
4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-7 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

## Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All    b) ☐ Some \* c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- 1) ☒ Notice of References Cited (PTO-892)  
 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)  
 3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
 Paper No(s)/Mail Date 10/21/03.
- 4) ☐ Interview Summary (PTO-413)  
 Paper No(s)/Mail Date. \_\_\_\_\_.
- 5) ☐ Notice of Informal Patent Application (PTO-152)  
 6) ☐ Other: \_\_\_\_\_.

### DETAILED ACTION

1. PCT/JP00/05779 was published as WO 01/16219 on 8 March 2001, and subsequently as USPN 6559195 to Yamamoto. USPN 6559195 has been used as an English language equivalent of WO 01/16219, and portions relied upon are cited in the '195 patent. The reference WO 01/16219 is available under 35 USC 102(b).

#### *Claim Rejections - 35 USC § 103*

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. **Claims 1-7** are rejected under 35 U.S.C. 103(a) as being unpatentable over Yamamoto (WO 01/16219 and USPN 6559195). The term "rate", as recited in Claim 1, is interpreted to be: a fixed ratio between two things. **As to Claim 1**, Yamamoto teaches a process of producing porous films comprising the steps of melt kneading a composition comprising a polyolefin resin (5:15-22), a thermoplastic elastomer (3:34-40) and a solvent (4:63); extruding and cooling the melt kneaded material into a sheet molding (5:22-38); rolling the sheet molding (5:31); and stretching and desolvating the rolled sheet molding (5:31-37, 5:39-56).

Yamamoto appears to be silent to a the limitation that rolling is carried out under a condition such that the sheet molding after rolling has an elastic recovery rate as calculated by the following equation (1) of 20% or less: Elastic recovery rate % =  $100 * (t - t_0)/t_0$ , Wherein  $t_0$

Art Unit: 1732

represents a minimum clearance of a sheet rolling section in the rolling, and  $t$  represents a sheet thickness in the elastic recovery state after pressure release.

However, this aspect would have been *prima facie* obvious over Yamamoto's method because Yamamoto teaches measurement of the shrinkage ratio,  $(R) = 100 * (P_0 - P_1)/P_0$  wherein  $P_0$  is a number of picture elements before shrinkage and  $P_1$  is the number of picture elements after shrinkage (See 8:59-9:8). In the Examiner's interpretation,  $P_0$  and  $P_1$  pertain to numbers of units of area measured before and after shrinkage. Yamamoto therefore teaches it is known to measure area before and after shrinkage, and also that it is known and obvious to: a) prevent (or minimize) heat shrinkage by thermal treatment (7:20-22) and b) achieve shrinkage ratios of as little as 9 to 10% (Table 1, column 12). Doing so would have obviously or inherently achieved the same recovery rate as that sought in the instant invention. **As to Claim 2,** Yamamoto teaches heat pressing (9:28-29) by rolling (5:30-31), at a compression ratio of 6 or more (5:22-28), until a desired thickness is achieved (9:25-32). Because Yamamoto teaches pressing until the desired thickness is achieved, time appears to represent a result effective variable which can be optimized in order to achieve a desired thickness. See MPEP 2144.05 II and *In re Boesch*, 617 F.2d 272, 205 USPQ 215 (CCPA 1980). In particular, it would have been *prima facie* obvious to select a time of greater than 1 minute in order to provide crosslinking which reduces the amount of shrinkage in the final product (see 6:54-60). **As to Claims 3 and 4,** Yamamoto is silent to the pressure type roller double belt pressing machine (Claim 3) and to the continuous nature of the machine (Claim 4). However, the Examiner submits that the particular apparatus claimed does not materially affect the claimed process, and therefore has not been given patentable weight. The Examiner further submits that Yamamoto teaches the same process

Art Unit: 1732

applied in a batchwise manner (See rejection of Claim 1 above), and also suggests rolling (5:30-31). In view of these teachings, the Examiner submits that it would have been obvious to use a continuous rolling process because it has been held that it is obvious to provide a continuous operation in view of the batch process of the prior art. See MPEP 2144.04(V)(E.) and *In re Dilnot*, 319 F.2d 188, 138 USPQ 248 (CCPA 1963). **As to Claim 5**, Yamamoto teaches heated compression within the claimed temperature range (See melting points of 132 C and 144 C in 9:15-19 and heat pressing at 115 C in 9:29-30), and cold pressurizing at 40 C or lower (9:25-27). **As to Claim 6**, Yamamoto teaches a composition comprising a crosslinkable, double bond-containing, thermoplastic elastomer (2:67, 3:34-40, 6:1-4). **As to Claim 7**, this intended use limitation does not materially affect the claimed process, and therefore has not been given patentable weight. However, Yamamoto clearly teaches battery separators (column 1).

### ***Conclusion***

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Hubbard (USPN 2973398) provides evidence that continuous production of battery separators on a continuous belt process is known.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Matthew J. Daniels whose telephone number is (571) 272-2450. The examiner can normally be reached on Monday - Thursday, 7:30 am - 5:30 pm.


Art Unit: 1732

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Michael Colaianni can be reached on (571) 272-1196. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

MJD 10/25/05

MJD

  
**MICHAEL P. COLAIANNI**  
**SUPERVISORY PATENT EXAMINER**